MANITOBA

ANNUAL REPORT

1982

The
Clean Environment
Commission

Province of Manitoba

The Clean Environment Commission

Annual Report

1982

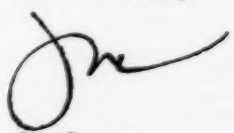
MANITOBA
MINISTER RESPONSIBLE FOR
ENVIRONMENTAL MANAGEMENT
WORKERS COMPENSATION
WORKPLACE SAFETY AND HEALTH
WINNIPEG
R3C 0V8

Her Honour,
The Honourable Pearl McGonigal,
Lieutenant-Governor of Manitoba,
Room 235 Legislative Building,
WINNIPEG, Manitoba.
R3C 0V8

Your Honour:

The undersigned has the honour to present the Annual Report of The Clean Environment Commission detailing its activities for the year ending December 31, 1982.

Yours sincerely,



Jay Cowan,
Minister.

MANITOBA
CLEAN ENVIRONMENT COMMISSION
Office of the Chairman
Telephone: 895-5333
Box 4, 139 Tuxedo Avenue
Winnipeg, Manitoba
R3N 0H6

The Honourable Jay Cowan,
Minister Responsible for
Environmental Management,
Room 333 Legislative Building,
WINNIPEG, Manitoba.
R3C 0V8

Dear Mr. Cowan:

Pursuant to the provisions of Section 11 of The Clean Environment Act, The Clean Environment Commission herewith transmits to you, as Minister responsible, its Annual Report.

Section 11(1) of The Clean Environment Act provides that the annual report of the Commission shall include:

(a) the investigations and hearings conducted by the commission;

(b) the orders made;

(c) regulations made under this Act;

(d) a review of the state of the environment;

(e) such other matters as the minister may require.

In the discharge of its responsibilities under that subsection of the Act, The Clean Environment Commission is pleased to submit the particulars set forth in the following pages of its Annual Report for the year ending December 31st, 1982.

Submitted on behalf of the Commission.

S. Eagleton

Stanley Eagleton,
Chairman.

The Clean Environment Commission
1982 Annual Report

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Chairman's Message

The Clean Environment Commission Annual Report contains an account of investigations carried out by the Commission and of the orders made and regulations issued under The Clean Environment Act as well as a report on the State of the Environment. The purpose of these orders and investigations is to achieve the protection and the improvement of the Manitoba environment.

General interest in and concern for the environment continues to grow with a focus on such matters as acid rain, nuclear operations, the transportation of dangerous goods, hazardous materials disposal and, in Manitoba, the possible effects of the Garrison Diversion.

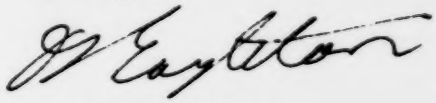
An important part of the work of the Commission is the provision of the opportunity for citizens of Manitoba to participate in environmental decisions through the public hearing process. Public participation in hearings, with the resultant exchange of information, leads to a better understanding of the environmental issues and the protective measures that are taken. The hearing process also provides an opportunity for industry, utility and municipal operators and government agencies to become aware of public opinion. Concerns, ideas, and recommendations presented at hearings by persons or organizations, many of whom have individual or collective expert knowledge, are carefully considered by the Commission and affect the orders and reports which are issued.

The Commission is indebted to the individuals who presented their views and to the representatives of those companies, associations, organizations, and departments of the federal, provincial and local governments who came forward at so many of our hearings. As a result of their efforts, the Commission received numerous, well prepared, learned and technical briefs. These led to a broader and more accurate understanding of the issues on the part of the Commission and of the public and media representatives attending the hearings.

The many hearings held during 1982 could not have been successful without broad participation by members of the public, or without the submissions provided by the expert witnesses who attended.

In particular, the Commission would like to tender its thanks to the representatives of the Environmental Management Division, of the Manitoba Government who prepared environmental reports and recommendations and who presented these to the Commission at hearings. A number of other federal and provincial departments and agencies also contributed reports and presentations. The Commission also wishes to acknowledge the interest and the participation of representatives of the Manitoba Environmental Council in some of the major hearings.

Sincerely,



Stan Eagleton,
Chairman.

The Clean Environment Commission

The Clean Environment Commission is a quasi-judicial body appointed by order-in-council under the terms of The Clean Environment Act (Chapter C130 of the Consolidated Statutes of Manitoba), which stipulates that the Commission shall consist of not less than three members, so appointed.

Throughout 1982, the Commission was made up of five Manitoba citizen appointees under a full-time chairman, working with the support of a small secretariat. The Commission reported to the Minister responsible for the administration of The Clean Environment Act, The Honourable Jay Cowan, Minister Responsible for Environmental Management.

The 1982 Commission membership was as follows:

Mr. O. Stanley Eagleton, Civil Servant, Chairman
Mr. Harry M. Sleigh, Retired, Vice-Chairman
Mr. Raymond E. Chant, Professor, University of Manitoba, Member
Mr. Gerald D. Morrow, Pharmacist, Melita, Member
Mr. John Vaags, Farmer, Dugald, Member
Mr. W. Richard Whidden, Lawyer, Thompson, Member

Commission Background and Responsibilities

Prior to 1935, public health concerns related to pollution control were dealt with under The Public Health Act. In 1935, specific water pollution control legislation was enacted by the Manitoba Legislature. This was The Prevention of Water Pollution Control Act which resulted in the appointment of the Provincial Sanitary Control Commission for the control of water pollution problems, especially in the Greater Winnipeg area where drought and low water levels had made existing problems more apparent. During its 33 years of operation, this Commission issued 150 licences to limit individual sources of water pollution.

In 1968, when the need for more broadly based environmental protection became apparent, The Clean Environment Commission Act was passed providing for protection from contamination of not only the water, but also the air and land of Manitoba. Under the terms of this Act, The Clean Environment Commission came into being.

The primary responsibilities of the Commission include the issuing of orders to regulate and control pollution by prescribing limits, terms and conditions on the emission of contaminants to the environment. The Commission also carried out the investigation of environmental matters of general interest and importance throughout the Province.

Public participation is of major importance to the work of the Commission and hearings are held throughout the Province in connection with its investigations. Hearings are held when a person or group, that is likely to be affected by an Order of the Commission, expresses a concern and desire to make a representation concerning the limits, terms and conditions, to be prescribed by an order of the Commission for emissions from a specific operation. Additional hearings can also be held by the Commission to determine compliance with the terms of its orders and the regulations and the provisions of The Clean Environment Act; to extend suspensions of orders beyond a 14-day period; in connection with the referral by the Minister of applications by municipalities for abatement projects; and to consider the possible variation of the terms of its own orders.

Programs and Activities

Meetings and Hearings

During 1982, the Commission held 19 business meetings and 23 public hearings in order to carry out its responsibilities under The Clean Environment Act.

Representations filed by persons having an interest in proposals advertised as being under review by the Commission, where there was a potential for the emission of contaminants into the environment, resulted in hearings being held in Winnipeg, Brandon, Carman, Rossburn, Sanford, Thompson, and Minnedosa.

In order to deal with variations of orders already issued by the Commission, The Clean Environment Act requires the holding of public hearings. In response to requests for variation, hearings were held in 1982 in Brandon, Souris, Winnipegosis, and Ochre River in western Manitoba, as well as in Winnipeg and Morden in the southeast, and in Brochet in the far north.

At the request of the Minister responsible, a hearing was also held in Brandon in order to review the air emission order covering the Simplot Chemical Company operation, which resulted in the variation of the existing order.

Other hearings were held at the request of the Minister responsible in Lac du Bonnet and Gladstone, resulting in varied orders.

A hearing was also held in Thompson, at the direction of the Minister to review the existing order covering air emissions from the Inco operation at Thompson and to report to the Minister with recommendations concerning possible variation of this order.

An additional four hearings were held in connection with the Commission's investigation, at the request of the Minister, concerning mosquito control programs in Manitoba. These hearings took place at Brandon, Dauphin, and Thompson, as well as an extensive hearing in Winnipeg that required four daytime and two evening sittings.

Protection of the Environment

General

In many jurisdictions, laws for environmental protection and pollution control are contained in a variety of separate acts affecting clean air, public health, waste disposal, and water pollution control. In Manitoba, the major piece of environmental legislation is The Clean Environment Act. This Act prohibits the release of contamination into the air, soil, and water of Manitoba in excess of prescribed limits. It describes contaminants as anything harmful to personal safety and health or property, anything affecting or foreign to the natural environment, or anything that interferes with the visibility, or the comfort, well-being or enjoyment of a person, or the normal conduct of business.

Under the Act, provision is made for two methods of prescribing limits to contamination. One method is in regulations issued by the Lieutenant-Governor-in-Council. Such regulations have been issued in a number of areas including, for example, small private sewage systems, private use of insecticides, handling and storage of petroleum product, and the registration and operation of waste disposal grounds. A summary of the regulations issued to date is included in this report.

A second method of setting legally prescribed and enforceable limits on the discharge of contaminants to the environment is by orders issued by The Clean Environment Commission to the operators of potential and existing sources of contamination. The Commission issues orders for all operations referred to it by the provincial Environmental Management Division. After referral, the Commission advertises each of the operations. The advertisements provide an opportunity for people who may be affected by the operation to be informed of the potential for contamination. In cases where the Commission receives notice that a person likely to be affected wishes to make a presentation, The Clean Environment Act provides that a public hearing must be held before an order is issued. Notwithstanding objections, The Clean Environment Commission may, of its own volition, hold a hearing. A number of the orders issued in 1982 are discussed in the following sections.

Air

The new C.S.P. Foods Ltd. plant located at Harrowby provides a good example of the procedure for issuing orders. The proposal for the operation of an oil seed crushing plant was referred to the Commission. Following consultation with the operators, the Manitoba Environmental Management Division fowarded an environmental report to the Commission in April 1982 recommending limits, terms and conditions. The Commission then advertised in the appropriate newspapers that the plant in question would be doing business at the location noted with resultant emissions to the atmosphere. Any person affected or likely to be affected by an order of The Clean Environment Commission could notify The Clean Environment Commission. A copy of the report and recommendations prepared by Environmental Management Division was forwarded to the operators and to the Rural Municipality of Russell, where the plant is located, to provide an opportunity for discussion of any objections, problems or difficulties foreseen. After considering the limits recommended by the department with regard to an appropriate level of environmental protection, and after confirming that the proposed limits were satisfactory to the municipality and to C.S.P. Foods Ltd., and, as no public hearing was needed in the absence of any objection on the part of the neighbours or any of the members of the public who might have been affected, the Commission issued its order July 22, 1982. The terms of the order to C.S.P. Foods Ltd. include limits on any smoke, particulates, wind borne dust, odours, and noise emissions. The order also specifies that there must be no discharge of liquid effluent off the site of the operation and specifies conditions regarding the storage and handling of petroleum products and the disposal of solid waste.

The Mohawk Oil Company Ltd. filed a proposal to renovate and place in operation a former whiskey distillery located in Minnedosa. The plant produces alcohol for use as motor fuel as well as a protein-rich animal feed by-product. The Commission received the environmental report and advertised the operation in May, 1982. Possible emissions included dust and noise from grain handling, odour from the cooking and drying processes, and the discharge of cooling water to the Little Saskatchewan River. Following the Commission's advertisement of the operation, notice of

representation was filed by a resident of Minnedosa and, as a result, the Commission held a hearing in August, 1982. Representations received at the hearing dealt with odours from the plant which was already in operation at that time. On behalf of the Town Council, the Mayor expressed the view that unreasonable emission controls should not be imposed by the Commission as they might unfavourably affect the economic viability of the operation. A short time after the hearing, the Commission issued its order prescribing limits on the particulates, visible emissions, noise, odours, and also included limits on the cooling water discharges, during low water conditions, to the Little Saskatchewan River. The air pollution control limits in the order are somewhat less restrictive than those recommended by the Environmental Management Division; however, the Company is required to commence studies to determine possible future reduction of odour emissions and the sociological impact of the odours on the town. Results of the study are to be reported to The Clean Environment Commission before November, 1985.

A more complex air pollution control situation was brought to the Commission's attention in 1982 involving the Simplot Chemical Company Ltd. fertilizer plant in Brandon. This plant was operating under an order issued by the Commission in 1980 which took into account a major plant expansion which almost doubled the ammonia and urea production capacity. Difficulties were encountered by the Company in breaking in and balancing the operation of the new plant facilities. This resulted in several major ammonia emission excursions affecting residents in east Brandon in May and June. The Commission held a hearing to determine compliance with the order and to consider any possible variations after receiving a request from the Minister responsible for Environmental Management, The Honourable Jay Cowan, who had received numerous complaints of nuisance ammonia odours from the plant during the spring and early summer of 1982.

At the hearing in Brandon in July, 1982, strong citizen complaints were received from the residents of the east end of Brandon, particularly the Green Acres subdivision. The Environmental Management Division recommended the Commission place new limits on ammonia emissions. Following an adjournment granted to permit the Company to further study the recommendations and the objections and prepare appropriate responses, the hearing was reconvened September 20, 1982. At the reconvened hearing, the City of Brandon, the plant union, the Chamber of Commerce and others asked that the Commission not impose restrictions on the Company that would endanger the plant's financial viability at a time of economic recession and constricted markets. The residents affected by the operation appealed for adequate protection from ammonia fumes. The Company indicated that it was undertaking a program designed to overcome emission problems, most of which were caused by start up and break in of new plant facilities. The remedial program involved the installation of some additional equipment and the modification and correction of new plant facilities. However, the Company requested that, because of the difficulties which frequently occur in the operation of new facilities, no emission limits should be placed on ammonia for at least three years. Following the hearings, the Commission issued its order stipulating new limits on levels of ammonia in the air in Brandon residential districts as well as continuing a series of limits on the oxides of nitrogen, sulphur dioxide, and particulate matter emissions. The order also required the Company to install a continuously operating ammonia monitor in the vicinity of the Green Acres subdivision and to participate in a joint committee that would include residents, government, and City representatives. In December of 1982, Simplot Chemical Company Ltd. submitted an appeal against the order to the Minister responsible.

The issuance of an order for the control of emissions to the atmosphere from the Shell Canada Limited, St. Boniface Refinery, was a major air pollution control problem dealt with in the Winnipeg area in 1982. A hearing, held in the St. Boniface Community Centre, in March, resulted from the Commission's decision, contained in its 1977 order to the Company, to review the air contamination limits set at that time. The hearing followed years of intensive air quality monitoring around the plant by the Company and the Manitoba Government. It also followed Shell's submission in January 1982 of a comprehensive report on the refinery operation. At the hearing, the Company expanded on the report by analyzing emission and dispersion patterns and reviewing the success achieved by their emission control and community relations programs. They also presented plans for substantial plant modifications and new construction to reduce the plant's sulphur dioxide emissions. The Commission's new order, issued in June 1982, reflected the expectation that, together with other abatement programs, the sulphur dioxide emissions would be reduced from the existing authorized level of 40 tonnes per day to 15 tonnes per day within a two year period, with allowance for plant breakdowns. An appeal from the order which was filed by

the Company, in July, 1982, as a result of altered circumstances affecting Shell's position, was still under consideration at year end.

In May 1982, at the direction of the Minister in conformance with a clause of the existing order, the Commission held a hearing in Thompson to review the terms of the order limiting stack emissions from the Inco Metals Company smelter operation at Thompson.

At the hearing in Thompson, Inco reported that, in part because of the Company's research program which resulted in the segregation and rejection of the sulphur-rich pyrrohtite fraction of the ore before smelting and in part because of reduced production, the sulphur dioxide stack emissions had been substantially reduced during the years prior to the hearing. Testimony presented by Inco and its consultant at the hearing indicated that, while evidence of some acid precipitation has been found from monitoring at Island Lake, Norway House, and Bissett, in central and eastern Manitoba, there was considerable buffering capacity in many of the rocks and soils in the province and little evidence of damage from this source has been documented. Nevertheless, concern for possible present and potential adverse environmental effects from acid rain within this Province were expressed by representatives of the Environmental Management Division and the Canadian Forestry Service. It was suggested that the sulphur dioxide from Manitoba's two major smelters at Flin Flon and Thompson may cause problems further afield, and especially in those large portions of the Canadian Shield east of the province which have more limited buffering capacity. Evidence was also received that, as the particulate matter, to a large degree, settles out of the stack plume within a few kilometres downwind of the operation, this has caused some deterioration in the condition in the native forest and muskeg. The deterioration includes the disappearance of lichens and mosses in areas near the stack. Also within a 5 kilometre radius of the stack, the growth of some species of tree seedlings and the ability to regenerate is inhibited. The effects of stack emissions can be observed in the forest to a distance of 30 to 50 kilometres from the stack. However, there has been no identifiable acidification of the soil or of any of the local bodies of water within the area and there is little visible damage to the forest, even in the immediate Thompson area, after 20 years of smelter operation.

The Commission was informed that the federal and provincial governments would be attempting to develop a national approach to the reduction of acid rain and sulphur dioxide emissions.

Following the hearing, the Commission submitted its report and recommendations to The Honourable Jay Cowan, Minister Responsible for Environmental Management. The Commission accepted recommendations put forward by the Environmental Management Division that there be no change in the sulphur dioxide emission limits at this time. However, a recommendation was made that the matter be reviewed again in 1985. In the meantime, the report suggested that Inco be required to carry out studies of sulphur containment methods achieving sulphur dioxide emission reductions of 50% and 80% respectively and submit reports of the studies by mid-1985. These studies are to include not only methods by which such reductions could be achieved, but also the cost of such reductions and the financial implications on the Inco Thompson operations. The marketability of the by-products of sulphur containment would also be addressed in these studies. It was also recommended that studies continue concerning the impact of the operation on forest vegetation and concerning the long-range dissemination of air pollutants from the smelter. The Commission's report remained under consideration at year end.

Mosquito Control Programs Investigation

The Commission's major investigation of 1982 was an enquiry concerning mosquito control programs in Manitoba. The Minister requested the Commission to conduct a comprehensive investigation and report on the whole subject of mosquito control. This encompassed such matters as existing and potential environmental problems, the efficacy of existing control methods, programs for nuisance mosquito control, the emergency program which has been used as one measure to control outbreaks of western equine encephalitis, and the possibilities of developing alternative methods as well as examining whether existing legislative and regulatory controls were adequate. Hearings were held in May 1982 in Brandon, Dauphin, and Thompson and, in extended sessions, over a four day period in Winnipeg. Those attending the hearings included concerned citizens and representatives of environmental action groups, the insecticide industry, experts from abatement programs in Ontario, Saskatchewan, and Alberta, and senior technical officials of the pesticide regulatory process from the federal departments of agriculture, public health, environment, fisheries and oceans.

Testimony received at the smaller centres dealt mainly with local programs. In Brandon, the Commission heard discussion of an integrated program carried out by the City under the auspices of a voluntary mosquito abatement committee which includes biologists from the University of Brandon. At the Winnipeg hearing, a very wide range of briefs were received covering all aspects of pesticide registration, regulation, mosquito biology, program design and operation, public health aspects, and also including expressions of public concern opposing or favouring various aspects of chemical insecticide use. In an interim report, submitted to the Minister prior to the time when a possible outbreak of the mosquito borne disease western equine encephalitis might occur, the Commission dealt exclusively with the mosquito control programs which have been utilized in the past during a declared health emergency arising from an encephalitis epidemic.

This initial report emphasized the differences between routine programs to control nuisance mosquitoes and the occasional single, widespread, relatively low volume aerial spraying used to control epidemics of mosquito borne disease as occurred in Manitoba in 1975, 1977, and 1981. The Commission concluded that such programs, based on an efficient and continuing provincial government surveillance and monitoring program had considerably reduced the numbers of the kind of mosquitoes which are known to carry the western equine encephalitis virus and this would logically lead to some reduction in the incidence of disease infection. In the interim, as well as in its main report submitted later in the year, the Commission concluded that an emergency aerial spraying program was justified and environmentally acceptable when faced with a serious threat of a western equine encephalitis epidemic.

In contrast to its conclusions concerning disease control, in the full report, the Commission questioned the routine use of fogging to control nuisance mosquitoes in residential areas. While treating mosquito breeding sites to kill larvae and pupae appeared to be a cost effective control measure with little exposure of the population to the insecticides being used, fogging of residential areas unavoidably exposes large numbers of people including the very young, the very old, and those who may be susceptible because of illness or allergy. Less questionable than residential fogging is the use of insecticides against adult mosquitoes in parks and recreation areas to increase enjoyment during the short Manitoba summer season when those who object to insecticides can easily avoid exposure by not using the facilities where insecticides have been used. The Commission recommended research programs be encouraged by the Province concerning disease control and the environmental impact of insecticide use. It also recommended the Province implement a permit system to regulate municipal insecticide programs and provide communities with expert consultation and assistance where necessary to design and operate effective and safe mosquito abatement programs.

Water

The control of liquid effluent from the Simplot Chemical Company Ltd. plant in Brandon also came under consideration by the Commission in 1982. Originally covered by orders issued in 1974 and 1979, this aspect of the operation was reviewed following expansion of the plant and after a company request for a variation to alter the pH limit in the effluent directed to the Assiniboine River. A hearing was held in Brandon in April 1982. It was apparent from the response received that the issues were of much less public concern than those affecting plant emissions to the air. Representatives were present from the Cities of Brandon and Portage la Prairie and the Rural Municipality of Cornwallis, as well as representatives from industries in both cities, and from the Economic Development Department of the Manitoba Government.

The Company requested that the existing order placing limits on the discharge of liquid effluent be modified to make provision for the plant expansion which had just taken place. The Commission's previous order had required that the liquid effluent be used only for the irrigation of crop land from May 16 to September 14 with discharges to the Assiniboine River for the balance of the year. Following the hearing, the Commission's new order made provision for the discharge of a limited quantity of effluent to the Assiniboine River during the crop growing season for an interim period of two years. Limits on effluent quality were also modified to bring about a reduction in the discharge of ammonia to the river, over the same time frame, mainly to protect fish.

A hearing was also held in Brandon in July 1982 concerning the City's sewage treatment facilities. There was disagreement concerning the severity and timing of sewage effluent quality limitation and the expansion and upgrading of treatment capability. This discussion arose from recommendations submitted by representatives of the Manitoba environment department for imposition of the normal set of liquid effluent standards applying to municipal sewage operations. The City contended, on the basis of their studies, experience, and in the

light of financial considerations that reasonable effluent quality standards were already being met and that any necessary upgrading should be phased in over an extended time frame. One other matter of concern with respect to the effluent was the discharge of ammonia. The ammonia levels are considerably higher in the effluent during the winter. A portion of the ammonia (as a function principally of the pH) is in the unionized form. This form at quite low concentrations is toxic to fish. Also, ammonia is a plant food and could add to the algae in the river. Ammonia or some other nitrogen form is not as important to plant growth as is phosphorus since nitrogen can be fixed by the atmosphere. Any inducement to plant growth (especially algae) gives rise to problems at the City of Portage la Prairie water treatment plant in terms of filtration, taste and odour control which requires treatment at a greater cost to the operation. The Commission's order prescribed somewhat less stringent limits than originally recommended during an interim 3½ year period to provide time for upgrading the municipal sewage system. Provision was also made in the order for the City to undertake, in co-operation with government departments, a study of the impact of ammonia and chlorine contained in the effluent on the Assiniboine River biota and to examine means for correcting the discharge of raw sewage to the river which occurs principally during heavy storm runoff periods.

In a December hearing at Souris, the Commission considered a request by the Town to extend time limits on its order covering the municipal sewage treatment plant. In Souris, where the problem of an overloaded sewage facility had existed for a considerable period of time, the Town had embarked on a construction program, supported by The Manitoba Water Services Board, to install a new plant. The plant design was based on an original concept developed by Mr. C.D. Hughes, former engineer for the City of Brandon. After determining that construction delays, unrelated to the advanced design of the plant, could not be overcome, the Commission varied its order to provide an additional eight months to bring the plant into operation. The varied order also provided for an alternate plan in the event that the plant could not produce an effluent meeting the proposed limits.

One of the most interesting and complex activities of the Commission involved the two separate hearings to review pollution control aspects of the Inco Limited nickel mining and smelting complex at Thompson with regard, firstly, to air emissions from the smelter complex and, secondly, with regard to the proposed start up of a new open pit operation adjacent to the townsite. At the latter hearing in June 1982, the Commission received evidence and representations concerning the discharge of liquid effluent and runoff water, the deposition of solid wastes, and also on airborne emissions, other than those included during consideration of the main 500 foot smelter stack. The hearing followed receipt of a proposal by the Company to construct and operate the new open pit mine on the site of the Company's holdings in Thompson located under Thompson Lake. Following a multi-year construction period, the new mine would continue exploitation of the ore bodies already being mined from existing underground operations. The open pit mine would serve as a successor operation to the Pipe No. 2 open pit mine which is to be phased out of operation within the time frame necessary to develop the new mine. The hearing dealt with the disposal of the material to be discharged from a massive dredging operation in Thompson Lake along with minewater, process water, and mill tailings into Inco's approved tailings disposal area with continued discharge of tailings area effluent to the Burntwood River. Also considered at the hearing were noise and seismic earth tremors from future blasting at the new mine site as well as particulate and other emissions from operations within the Thompson mine/smelter complex.

The order issued by the Commission, following the hearing, superceded or replaced six of the Commission's licences issued for the separate mines and tailings drainage operation in previous years. It prescribed, in detail, limits on the quality of effluent discharged to the environment, limits on noise from dredging, and vibration from blasting, as well as on the emission of particulates to protect the environment and the quality of life in Thompson. The order also required the Company to carry out an extensive and continuing program of monitoring and reporting on the presence of specified contaminants in the effluent.

During 1982, the Commission carried out an investigation having a major impact in a large area of the Province and one previously concerned with local conditions.

This latter report arose from a request from the Minister, and from a recommendation of the Manitoba Ombudsman to investigate the pollution of underground water by petroleum products and fertilizer. This investigation had its origin in complaints filed on behalf of a resident of Stonewall with the Ombudsman and with other public officials. The Commission held its hearing in connection with this

matter in 1981 and continued receiving evidence in the beginning of 1982. The Commission's report, which was submitted to the Minister early in the year, indicated that evidence had been found of trace amounts of petroleum products and nitrogen contamination in well water at Stonewall for a period of several decades. The Commission concluded this had resulted from known and unknown past spills and seepage of these products in an area of high groundwater contamination hazard due to exposed surficial limestone formations. The Environmental Management Division reported to the Commission that, following the issuance of a regulation setting standards for petroleum product handling in 1975, petroleum storage facilities in Stonewall were not causing or contributing to groundwater pollution at the time of the hearing. Corrective measures had included extending the depth of the Town water supply well to a deeper aquifer and extending piped water and sewer service to many of the impacted portions of Stonewall not previously served. In its report, the Commission recommended continuing investigations to establish more complete data on the conditions of the aquifer and potential sources of contamination.

As a result of a continuing major program of investigation being carried out by the Commission with a view to assigning water quality objectives and stream classifications to all nineteen of the major watersheds throughout Manitoba, the Commission submitted its report and recommendations concerning the Grass and Burntwood Rivers Basins in June 1982. This report arose from hearings held late in 1981 in Snow Lake on the Grass River drainage, at Thompson located on the Burntwood River, and at the Nelson House Indian Reservation in those waters of the Burntwood drainage affected by the Churchill River Diversion. These two river basins are extremely important to Manitoba as they occupy a large area in the north-central portion of the province containing a major share of the province's mineral wealth and large vistas of excellent wilderness area.

In its report submitted to the Minister, the Commission recommended a range of classifications within the two basins. Pointing out that the classifications have the status of objectives for the guidance of future development and that they were not standards or laws that had to be met, the Commission recommended the headwaters of the two systems be given a special nondegradation classification in accordance with recommendations received from the Environmental Management Division. This recommendation was designed to require the use of the best practicable technology where necessary to protect aquatic ecosystems from being adversely affected by any planned future development. It was recommended that the downstream lakes and streams of the Grass River system receive a high quality classification. However, as the water quality in the lower division of the Burntwood is affected by shoreline erosion and increased flows resulting from the 1977 diversion of 85 per cent of the flow of the Churchill River system, the Commission recommended a modified and somewhat lower schedule of water quality objectives for this division of the watershed.

Orders Issued

During 1982, the Commission issued 47 orders in accordance with Section 15(1) of The Clean Environment Act prescribing limits, terms and conditions on the release, discharge or deposit of contaminants to the environment. Details of these orders are given in Appendix "B". The operations for which orders were issued in 1982 can be classified as follows:

1.	Heavy Industry	1
2.	Medium Industry	2
3.	Light Industry	6
4.	Mining and Smelting	1
5.	Pest and Weed Control	7
6.	Sewage Treatment	
	(a) Farm Colonies	1
	(b) Municipal	10
	(c) Private	6
	(d) Government Resorts	—
	(e) Schools	1
7.	Utilities	—
8.	Pulp and Paper Mills	—
9.	Chemical Plants	2
10.	Building Materials	2
11.	Grain and Feed Mills	2
12.	Metal and Scrap Processing	—
13.	Food Industry	6
14.	Abatement Projects	—
		47 TOTAL

Of these orders, 26 (55%) dealt primarily with the control of contamination of the air and 21 (45%) were mainly concerned with water pollution control. As to their functional application, the orders can be divided into three main categories. Of these, sewage treatment facilities were involved in 18 (48%), manufacturing and processing industries received 21 (45%) of the orders, while 6 orders (15%) were issued for pest control projects. Only a single order was issued for the mining and smelting industry in 1982. The total number of 47 orders issued in 1982 represents an increase of approximately 25% over the number issued throughout the previous year.

State of the Environment

As stated in previous reports, Manitoba has a relatively clean environment. In addition to environmental vigilance, a reason for this is the fact that, apart from the Winnipeg area, the population density is low as is the degree of industrialization. This should not lessen the concern, however, both from sources within Manitoba and from outside. Problems such as acid rain and the Garrison Diversion project are a reminder that we are part of a larger ecosystem and sources of pollution outside our boundaries can impact our environment.

Scope

Section 11(1)(d) of The Clean Environment Act requires that the Commission shall prepare and submit to the Minister an annual report not only related to matters dealt with by the Commission, but including a review of the state of the environment.

A comprehensive report on the state of the environment is most desirable albeit the problem still remains that an undertaking to establish a base line position with respect to analytical data on air, water and land would be necessary. Beyond that would be a requirement to maintain current analytical data on all aspects of the environment to enable the establishment of air, water and land quality trends. This is a major undertaking with a necessity for large investments of funds to enable such a program and is beyond the present capability of the Commission.

In the absence of such a program as noted, the Commission's comments will address aspects of the environment that have come to its attention throughout the year and a number that have been reported in the press and technical literature that both relate to the environment in Manitoba and that have consequences for Manitobans.

Air

Acid rain continues to loom as a subject of worldwide environmental concern. In Europe, West Germany has been joined by Switzerland in changing its views about the seriousness of the acidification problem. The idea had been vigorously defended that not enough was known about the problem to warrant control actions. Now West Germany has adopted an opposite view and announced a new policy of reducing sulphur dioxide emissions by fifty per cent. This change in attitude resulted from studies linking acid deposition with forest damage over widespread areas of the country to the complete destruction of high altitude forests in Eastern Europe. This changed view would be welcome in Sweden, since fish have been wiped out in 4,000 of Sweden's 85,000 lakes as a result of acid rain. In the United States, the National Academy of Science noted the overwhelming evidence linking acid rain to emissions from industrial smokestacks. Also, in the United States, the State Department testified that the Reagan Administration considered new programs to reduce acid rain pollution as being premature and, therefore, they have embarked on a program of research to establish cause and effect concerning acid rain that will take five years to complete. All of this follows an August 1980 Memorandum of Intent signed by the United States and Canada to negotiate a bilateral agreement on transboundary air pollution related principally to acid rain. In terms of research, a United States Environmental Protection Agency comprehensive two year study on acid rain suggested that air pollution from the midwest was causing extensive environmental damage in the northeastern United States and Eastern Canada and a report by the United States Oceanic and Atmospheric Administration has said that acid rain may be nearly worldwide in distribution. The latter findings suggest that the acid rain problem cannot be dealt with region by region, but only on a co-operative international basis. In Western Canada, the Long-Range Transport of Air Pollution Technical Committee indicated that there is, at present, little effect from acid rain in Western Canada.

In Manitoba, The Clean Environment Commission order relating to emissions from the Inco Limited Smelter was reviewed in 1982. Hearings were held in May in Thompson to receive evidence and to prepare a report and recommendations concerning the possible variation of the existing Inco order. In its report to the Minister, the Commission recommended that the limit respecting sulphur dioxide remain unchanged at 1250 tons per 24 hour day. This is a reduction from the maximum values experienced during the early 70's of 1550 tons per day. Of more significance was the recommendation that, before June 1985, the Company must complete studies relating to sulphur containment, along with associated costs and the disposition of sulphur containment by-products. The study is to examine the reduction of sulphur dioxide by fifty per cent and eighty per cent to levels of 625 and 250 tons per day respectively. One of the biggest difficulties aside from the capital cost of a sulphur dioxide control program is the disposal of the by-products so produced. Dependent on the process, two such products

would be gypsum and sulphuric acid. Local damage to the forest ecosystem from stack emissions of sulphur dioxide appear to be confined to an area with a radius up to five kilometres from the smelter. The report recommends that the Company co-operate with government in investigating the long-range transport of sulphur dioxide, specifically the ultimate fate of the Thompson smelter plume. Testimony at the hearing indicated that some acidic precipitation appeared to be occurring at monitoring sites at Bissett, Island Lake, and Norway House, although the sources of that acid precipitation were not yet known.

Under the terms of their Clean Environment Commission order, Hudson Bay Mining and Smelting Co., Limited, the other major non-ferrous smelting industry in Manitoba, submitted a report to the Environmental Management Division in September respecting the reduction of sulphur dioxide emissions from the 825 foot stack by fifty per cent (to 440 tons per day).

In the case of both Inco and Hudson Bay Mining and Smelting, sulphur dioxide emissions were quite low throughout the year as a result of a production slow down or stoppage due to a soft nonferrous metal market.

A hearing was held to consider emissions from the Shell Canada Limited Petroleum refinery in St. Boniface early in the year. The Company expressed a willingness to install equipment to reduce sulphur dioxide emissions from the operation by more than fifty per cent. An order was subsequently issued requiring a reduction of sulphur dioxide from 40 to 15 tonnes per day. Later in the year, the Company appealed the order, requiring installation of a sulphur recovery plant, due to economic conditions. It should be noted that early in 1983, the Company announced that the St. Boniface refinery would be closed for a number of reasons including crude oil supply and the establishment of a large refinery closer to the source of crude oil in Alberta.

Another atmospheric contaminant of significance is heavy metals. Much of the discussion at the Inco smelter hearing related to the impact on the forest ecosystem of the heavy metals emitted from the smelter stack. Studies that had been undertaken showed that metal impacts could be measured within a radius of 30 kilometres from the stack, but that the major effect was exhibited less than 4.5 to 5 kilometres from the stack, but that the major effect was to the regeneration of black spruce seedlings. The Commission's report to the Minister recommended that the Company reduce the particulate emission limit to 11 tons per day. Also the Company was to co-operate in studies that would continue to examine the impact of the metal particulates on the soil and vegetation.

A Transport Canada spokesman said in an interview late in the year that there is strong evidence that automobile emission controls are working and that stronger measures may result from a review relating to legislation that may go into effect at the end of 1985. There has been a marked decrease in unburned hydrocarbons, carbon monoxide and nitrous oxides since regulations came into effect in 1975. Under the Canada Motor Vehicle Safety Act, emission controls are required at the manufacturers' level. Companion provincial legislation is needed to require motorists to maintain the equipment. Currently, only Ontario and British Columbia have laws against tampering with emission control equipment. Even Ontario has insufficient staff to maintain a thorough vigil. One of the outcomes of automobile and industrial emissions is the buildup of air pollutants in highly populated industrial areas and particularly those areas that experience meteorological thermal inversion conditions. The highest smog level in seven years occurred in the Toronto area this past fall. Under the Environmental Protection Act, industry was asked to reduce emissions by 50 per cent and residents were asked not to drive their automobiles. The levels of air pollution were such that the health of sensitive individuals was affected.

Winnipeg rated fair in a national air quality study. The report was based on ten years of data from a National Air Pollution Surveillance network across Canada. Winnipeg's air was rated generally good except for airborne dust in the spring associated with street cleaning and windblown soil from the rural areas. Air quality is better in the suburban residential areas (Jefferson Avenue Station) than it is in the heavy traffic areas downtown (Ellen Street Station). The report states that a decrease in certain contaminants measured was due to unleaded gasoline, emission controls, and increased use of industrial pollution control equipment.

On another note, there was a decline in the use of chemicals in Manitoba for the control of adult mosquitoes in 1982. Unlike 1981, when an emergency Western Equine Encephalitis program utilizing the aerial spraying of the insecticide Baygon was undertaken in some two dozen Manitoba communities, there was little indication of the virus causing the

infection in 1982. Even the Winnipeg nuisance adulticiding program was moderate due to a low incidence of mosquitoes, at least until early August. Meantime, The Clean Environment Commission held hearings in May and June throughout Manitoba to hear representations with respect to the control of mosquitoes, reporting to the Minister in October. Following receipt of this report, the Minister sought opinions, on the recommendations contained in the report, from a wide spectrum of municipal officials and interested individuals and organizations, prior to possible implementation or modification of the recommendations.

As another indication of the long-range transport of air pollutants, rotten egg odour of hydrogen sulphide was experienced in Winnipeg in late November. The hydrogen sulphide originated from a runaway sour gas well in Lodgepole, Alberta. There was no apparent health concern associated with this gas in Manitoba.

Water

The big water pollution concern still remains the possible impacts from the Garrison Diversion project in North Dakota assuming that the project proceeds with works that are located within the Hudson Bay drainage basin. The Garrison Diversion Unit is a multipurpose water project authorized by the United States Congress in 1965. The work is one principally intended to provide water from the Missouri River to project areas located in the James, Souris, and Red Rivers basins of North Dakota. The Souris and Red Rivers drain to Manitoba as part of the Hudson Bay drainage system. The major risk is that fish that are not native to the Hudson Bay drainage system will be introduced to that system with project wastes or overflows and thus endanger the desirable fish species.

The International Joint Commission, based on a study board report, advised the governments of Canada and the United States that, if and when the respective governments agree that methods have been proven that will eliminate the risk of biota transfer, then the construction of that portion of the Garrison Diversion Unit which would affect waters flowing into Canada may be undertaken.

Throughout 1982, the Garrison project and Manitoba's relationship to the project went through many variations. Early in the year, a United States court decision permitted resumption of work on the Garrison Unit. In February, $4 million was voted for the project for fiscal year 1982-1983 for research, maintenance and continued development of works near Oakes, North Dakota. Also, an antiGarrison group composed of Canadians and Americans formed a meeting in Boissevain. In early March, the Manitoba government opened a Garrison Diversion Unit office to act as a focal point for lobbying activities of citizens who are trying to stop further development of the project features impacting Manitoba. A Manitoba representative was added to the staff of the Canadian embassy in Washington, D.C. Manitoba also retained a Washington law firm to provide continuous advice on Garrison. A lawyer from the Manitoba government was appointed to spend four months in Washington listening and lobbying.

Funds were allocated by Manitoba for a Garrison Diversion project information campaign that would provide displays in communities across Manitoba. Several delegations, including a joint federal/provincial all-party lobby group spent some time in Washington with United States legislators. Late in the year, the United States House of Representatives voted to deny $4 million of additional funding to the project. Congress, however, restored the funds in a compromise bill. Thus, the Garrison Diversion project continues with an ongoing need for vigilance and action on the part of Manitobans.

Another water quality question of singular concern is the proposed cottage lot development along the shoreline of Shoal Lake. Shoal Lake is the drinking water supply source of the City of Winnipeg. The concern by the City of Winnipeg is that a development of this type would affect the water quality of the lake. In part, since the commercial fishery was closed by the Ontario government in that area a number of years ago, the Indian Band of Reserve #40 feels that a cottage lot development would replace that industry. In the absence of a cottage lot development, the Band feels that development rights to the cottage lots should be purchased. The Federal Minister of the Environment has established a panel which has developed guidelines for the preparation of an environmental impact statement to address the water quality and socio-economic issues of the proposal. At the completion of the statement, public hearings are expected to take place in order to receive input from interested public. The panel would then submit a report on its findings to the Minister of the Environment.

Studies continue into the problem of mercury in fish. Many of these studies have centered on Southern Indian Lake and along the Churchill River Diversion. The level of the lake rose ten

feet in 1976 as a result of the Churchill River Diversion. Flows along the diversion increased ten or more times. Scientists at the Freshwater Institute report that mercury levels in pike continue to increase from 0.61 ppm in 1980 to 0.68 ppm in 1982. Walleye have shown fairly stable levels over that period whereas the levels in whitefish have shown steady declines. The Canadian government standard for mercury in fish is 0.5 ppm based on the consumption of fish in the diet. The speculation is that mercury found in soil is inundated as a result of water regulation and diversion. Mercury is then converted to an organic form which is incorporated into the aquatic food chain. Another program involved medical testing of 1500 northern Manitoba natives for mercury in hair or blood samples. The report specifies that no dangerous levels of mercury contamination were found in the subjects tested. A more detailed study to consider these concerns is being contemplated by the provincial and federal governments.

Mercury at levels in the range of 0.5 ppm is often found in routine fish bioassay results from certain of the indigenous specimens collected from the Souris, Assiniboine, Red, and Winnipeg Rivers. Source of this mercury is not well established.

In 1981, the Commission reported to the Minister recommending the adoption of a set of water quality objectives for the Red River watershed. In mid 1982, the Provincial Government announced the formation of an intergovernmental committee to prepare proposals for improving the quality of water in the Red River. During 1982, the City of Winnipeg embarked on an expansion program at the North End Water Pollution Control Centre that would result in secondary treatment to handle estimated flows to 1994. This program is expected to take three years to complete.

A number of raw sewage spills took place throughout the year, but without apparent impact on downstream users of the receiving rivers. Brandon experienced problems with their waste water system that resulted in a number of accidental releases as well as a planned release of raw sewage. A Clean Environment Commission hearing was held and an order issued in November that required the City to undertake studies and correct the raw sewage releases. The order also dealt with a requirement to improve and upgrade the water pollution control processes and examine the sources and impacts of ammonia on the receiving water.

The City of Minot, North Dakota, also experienced a number of raw sewage releases to the Souris River from its wastewater system; however, impacts were not felt at the water treatment plant of the Town of Souris, some distance downstream. Discussions by provincial pollution control officials took place with both the City and the State in an attempt to prevent such further releases.

Aside from other normal aquatic studies, conducted by various agencies, research projects are being done on Lake Dauphin by both the federal and provincial governments with the aim of restoring the valuable commercial walleye fishery. One of the main components of the federal study is to examine the use of small fish rearing ponds. A main part of the provincial research program is related to the Valley River and attempts to identify whether and to what extent there has been a man-induced impact on fish spawning.

Land

There is no doubt that the most important subject in the area of soil pollution is that of the transportation and handling of hazardous wastes.

Late in the year, the government announced the first step of a three phase hazardous and special waste management program for Manitoba. The major components of the first phase of the program include hazardous materials legislation, province-wide Clean Environment Commission public hearings to recommend both the criteria for site selection and the type of facility required in Manitoba, a government sponsored symposium on hazardous and toxic wastes, a public information and awareness program and the hiring of a hazardous and special waste management co-ordinator. A co-ordinator was hired late in the year. The need for such a program, both here and elsewhere, has been increasingly apparent.

As an example, the United States Congress directed the Environmental Protection Agency in that country to establish a list of 400 top priority waste disposal sites which would be eligible for clean-up money from a fund of $1.6 billion. A site in Fridley, Minnesota, is ranked as the most critical in the nation, leaking chemicals from an unlined dump to the Mississippi River near where Minneapolis withdraws its drinking water. Former dump sites in the Niagara Falls, New York, area not only threaten the water supply of that City directly, but also indirectly the water supply of some 4,000,000 Canadians who utilize the waters of Lake Ontario as a drinking water source. Those dump sites in Niagara Falls are reported to be the repository of 70,000 tonnes of hazardous chemicals from the Hooker Chemical Company.

A problem in this field closer to home was the question of the disposal of contaminated soil resulting from a derailment near Austin, Manitoba. The City of Winnipeg refused to accept the wastes at the Brady sanitary landfill site. This site is constructed in impervious clay and was considered to be secure. The wastes were eventually shipped in covered railway cars to a suitable mine tailings disposal site at Lynn Lake where precautions were taken to cover the wastes with sand, clay and topsoil.

Manitoba produces approximately 45,000 tonnes of hazardous wastes annually. Some companies are compelled at the moment to ship their wastes to disposal sites in the United States.

On another, but similar note, the Minnesota Waste Management Board is seeking one or two areas for the permanent disposal of hazardous wastes. The process began in 1980 with 50 possible sites. The number was reduced to 5 sites in December with only one site remaining near the Manitoba boundary; that site being in Marshall County, some 70 kilometres south of the international boundary. The province is maintaining a watching brief on this project. A final decision concerning a site is to be reached in Minnesota in 1985.

A number of soil contamination situations are of interest. In 1981, an intensive survey of residential sod and soil was conducted in the vicinity of the Canadian Bronze Co. Ltd. located in the residential area of Weston in Winnipeg. A recommendation was made that sod and soil removal occur in all residential areas with lead levels of 2600 ppm or more in the sod or upper soil layer. This program, funded by the province, affecting 26 residential lots took place in June at a cost of approximately $13,000. A similar program on a picnic site located on Canadian Bronze property was undertaken by that company. Contaminated soil was sent to the City of Winnipeg Brady landfill site.

In North Point Douglas, there was a concern on the part of local residents that Polychlorinated Biphenyls (PCB's) may have accumulated in the soil in the yard area of a salvage company. It was feared that wind blown dust entrainment of the PCB's could be detrimental to their health. Soil sampling showed that only one of 38 samples collected slightly exceeded the guideline figure of 50 ppm for PCB's.

The Clean Environment Commission held a hearing in Stonewall to receive advice and representations in connection with possible contamination of soil and groundwater from bulk storage and handling facilities for fertilizers and petroleum. The principal conclusion was that one of the groundwater strata in Stonewall is contaminated with refined petroleum products and nitrates. Many of the domestic wells have been contaminated as a result of household waste disposal practices. Recommendations were made to prevent the entry of further contaminants to the groundwater aquifer.

Another problem of some magnitude in terms of abandoned waste disposal sites is that of methane gas production from decomposing garbage. Methane is both combustible and explosive in certain ranges and accumulations in crawl spaces or niches in buildings can be dangerous. The City of Winnipeg has a City Council policy that establishes a 700 foot control zone adjacent to these old dump sites. Building is regulated within this zone. In Brandon, one business has closed as a result of methane buildup from a former waste disposal ground. Two other businesses were being ordered to install devices to control methane buildup. In the meantime, part of the federal/provincial study to determine if sanitary landfills pose risks to groundwater or the buildup of methane in buildings has been completed. The study identified that, as a result of poorly kept municipal records, information on the type and quantity of wastes in many of the province's 760 landfill sites was largely unavailable.

On another note, the City of Winnipeg opened its newest park, Harbour View, located in the northeast section of the City. This is a 410 acre combined park and sanitary landfill operating successfully side by side. The landfill is covered by an order of The Clean Environment Commission.

With the establishment of a separate 24 hour reporting telephone number late in 1981 for environmental accident reports, the number of calls increased markedly in 1982. The actual number of accidental releases, however, increased only moderately over 1981.

Early in the year, the province announced the purchase of two portable crushers to control discarded metallic pesticide containers. This was a pilot project of several months' duration. The expectation is that municipal jurisdictions, singly, or jointly, will undertake to provide facilities to assist with the disposal of the close to 500,000 containers that are used annually in Manitoba.

Atomic Energy of Canada Limited will begin construction of a shaft near Lac du Bonnet early in 1983 as a start towards an underground nuclear waste disposal research program. Approval to conduct a nuclear research

program has been given by an independent review committee of scientists and engineers. The program, begun in 1978, is to study the rock near Lac du Bonnet (this rock appears throughout much of the Canadian Shield) and draw conclusions as to the safety of storing nuclear fuel waste. It is expected that the experimentation will begin in 1986 and the facility will close in 2000. Assurances have been given by Atomic Energy of Canada that this project will only test the feasibility of this type of storage facility and that actual nuclear wastes will not be stored at this site. Nevertheless, considerable concern over this project has been expressed by a number of people having property in this area. Agencies of the Province will be involved with the monitoring of the project.

This is the first full year of a three year study to monitor the effect of effluent irrigation from the Town of Roblin sewage lagoon. In a preliminary report by the Department of Agriculture Engineering of the University of Manitoba for the 1982 crop year, it was noted that the irrigated lands showed a significant increase in the yields of alfalfa. Increased production was due to improved moisture supply as well as improved nutrient supply. The effluent, although marginal in terms of the degree of mineralization, had no apparent harmful impact on the alfalfa. The impact of the effluent on soil fertility has yet to be determined. This project and the study is regulated by an order of The Clean Environment Commission.

General Matters

A very serious environmental problem, albeit indoors, is the presence of formaldehyde gas in levels in excess of 0.1 ppm. Most such homes have insulated walls and/or ceilings utilizing urea formaldehyde insulation. The insulation was banned from use in Canada in December 1980. Some research aimed at remedy of this problem is being conducted at the University of Manitoba.

Early in the year, a glass recycling business opened in Manitoba. Both commercial suppliers and domestic customers are served by this business in that the company is interested in all forms of glass. At present, the operation is that of a collection depot. The company operates a processing plant in Moose Jaw that converts recycled glass into beads for use in reflective highway paint and sandblasting.

Throughout 1982, there was at least one company in Manitoba collecting used oil, principally from service stations. Much of this oil was resold as a fuel for calcining limestone or cement production.

In late May, in conjunction with the opening of National Environment Week, the provincial government unveiled a mobile monitoring van which will be used to determine potentially hazardous environmental threats. The van is equipped to handle the detection of toxic gases and also to measure soil and water contaminants.

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Manitoba is fortunate to possess a clean environment. The environmental regulations and policies in Manitoba provide a mechanism to ensure that environmental problems and concerns are regulated and controlled.

Manitoba may be impacted environmentally from outside its jurisdiction and, in some instances, pollutants from Manitoba may also adversely impact other areas. A watching brief is maintained on areas such as the long-range transport of air pollutants, particularly acid rain, and projected impacts from the Garrison Diversion project.

An important goal in Manitoba is to ensure that the environment is kept in a satisfactory state not only for the present generation but also as a heritage for generations yet unborn.

Regulations Under The Clean Environment Act

1973 *February 13, 1973 — Manitoba Regulation 34/73,*
as amended by M.R. 6/76, respecting Livestock Production Operations. Any person operating or intending to operate a livestock production operation is not required to file a proposal or register as provided for in subsections 14(1) and 14(4) of The Clean Environment Act.

1974 *June 27, 1974 — Manitoba Regulation 156/74,*
as amended by M.R. 161/75, M.R. 26/78, and M.R. 118/79, respecting Pesticides. Any person intending to apply pesticides is not required to file a proposal as provided for in subsection 14(1) of The Clean Environment Act provided there is compliance with Section 2 of this regulation.

1974 *October 22, 1974 — Manitoba Regulation 259/74*
respecting Litter.

1974 *December 31, 1974 — Manitoba Regulation 334/74*
respecting Incinerators. Any person intending to construct or operate a new incinerator is not required to file a proposal as provided for in subsection 14(1) of The Clean Environment Act.

1975 *June 15, 1975 — Manitoba Regulation 120/75*
respecting Liquid Effluent Discharges From Pulp and Paper Mills. Any person operating or intending to operate a pulp and paper mill will not be required to file a proposal or register as provided for in subsection 14(1) and 14(4) of The Clean Environment Act with respect to liquid effluent discharges from the mill.

1975 *August 22, 1975 — Manitoba Regulation 174/75*
respecting the Treatment of Trees Found to have Dutch Elm Disease, whereby the government departments, Crown corporations or municipal corporations intending to set into operation a program to fulfill the requirements of Manitoba Revised Regulation P90—R2 under The Plant Pests and Diseases Act are not required to file a proposal as provided for in subsection 14(1) of The Clean Environment Act.

1976 *January 26, 1976 — Manitoba Regulation 18/76*
respecting the Disposal of Whey. Any person discharging or disposing of whey from a dairy manufacturing plant is not required to file a proposal or register as provided for in subsections 14(1) and 14(4) of The Clean Environment Act.

1976 *September 20, 1976 — Manitoba Regulation 208/76*
respecting Waste Disposal Grounds. Any person operating or intending to operate a waste disposal ground is not required to file a proposal or register as provided for in subsections 14(1) and 14(4) of The Clean Environment Act.

1977 *July 13, 1977 — Manitoba Regulation 140/77*
respecting Discharges to the Air from Secondary Lead Smelters. Any person operating or intending to operate a secondary lead smelter is not required to file a proposal or register as provided for in subsections 14(1) and 14(4) of The Clean Environment Act with respect to emissions of particulate matter and lead particulate matter from the smelter.

1977 *July 19, 1977 — Manitoba Regulation 145/77*
whereby the Minister declared portions of lands in the Local Government District of Fisher as a Critical Area for the purposes of the Storage and Handling of Gasoline and Associated Products Regulation.

1978 *June 26, 1978 — Manitoba Regulation 115/78*
whereby the Minister declared portions of lands in the Rural Municipality of Victoria as a Critical Area for the purposes of the Storage and Handling of Gasoline and Associated Products Regulation.

1980 *June 27, 1980 — Manitoba Regulation 112/80*
respecting Campgrounds.

1980 *September 3, 1980 — Manitoba Regulation 156/80*
respecting the Storage and Handling of Gasoline and Associated Products. Any person operating or intending to operate a storage tank system is not required to file a proposal or register as provided for in subsections 14(1) and 14(4) of The Clean Environment Act. This regulation repeals Manitoba Regulations 148/76, 42/77, and 246/77.

1980 *September 16, 1980 — Manitoba Regulation 165/80*
respecting The City of Winnipeg Amy Street Heating Plant located at 21 Amy Street, Winnipeg, Manitoba. This regulation postponed to September 1, 1985, the imposition of the stated air pollution control limits.

1981 *January 7, 1981 — Manitoba Regulation 15/81*
respecting the designation of certain substances as Hazardous Materials.

1981 *March 27, 1981 — Manitoba Regulation 85/81*
respecting Private Sewage Disposal Systems and Privies. Any person operating or intending to operate a private sewage disposal system with a sewage flow of less than 14,000 litres of sewage per day is not required to file a proposal or register as provided for in subsections 14(1) and 14(4) of The Clean Environment Act. This regulation repeals Manitoba Regulation 272/76.

Appendix A

Public Hearings

Number	Date	Subject	Location
H-01-82	82/01/11	Regarding Manitoba Dairy Co-operative Ltd. in connection with the operation of a manufacturing plant in the Village of Rossburn, Manitoba.	Rossburn
H-02-82	82/02/01	Regarding a direction from the Minister to hold a hearing and report on the operation of a sewage lagoon system located on portions of the SW¼ of Section 20, and the NW¼ of Section 17, Township 15, Range 11 EPM in the Rural Municipality of Lac du Bonnet with discharge of treated effluent to the Winnipeg River via drainage ditches and Wardrop's Creek.	Lac du Bonnet
H-03-82	82/03/15	Regarding a request by Whitehorse Enterprises Ltd. for variations to all or part of Commission Orders No. 667VC and 668VC, and in particular to extend the date set for compliance with effluent quality limits, concerning the operation of two primary sewage treatment facilities located on Lot 37, Plan 5066, in the Rural Municipality of Cartier, Manitoba, serving the Whitehorse Plains Mobile Home Park and a tourist camping area, with discharge of effluent to the Assiniboine River.	Winnipeg
H-04-82	82/03/16	Regarding Foremost Sailcraft Ltd. for the operation of a plant for the manufacture of tanks, van interiors and other items from fibreglass reinforced plastic, located in Block A, Plan 31, W/S Main Street, in the Town of Carman, Manitoba.	Carman
H-05-82	82/03/22	Regarding Shell Canada Limited to consider the variation of all or part of Order No. 738VC issued on the St. Boniface Refinery operation located on Lots 1, 2 and 3, Plan 5383 of the Roman Catholic Mission Property, at or near 250 Panet Road, Winnipeg, Manitoba.	Winnipeg
H-06-82	82/04/13	Regarding the Rural Municipality of Ochre River to consider a request by the Municipal Council to vary all or part of Order No. 905 in connection with a sewage lagoon system located on Parcels A/C 1747 in the SW¼ of Section 15, Township 24, Range 17 WPM in the said Municipality serving the unincorporated village of Ochre River with discharge of effluent to the Ochre River.	Ochre River
H-07-82	82/04/13	Regarding the Village of Winnipegosis to consider a request from the Village Council to vary all or part of Order No. 907 in connection with the operation of a sewage lagoon system located in the SE¼ of Section 15, Township 31, Range 18 WPM in the Village of Winnipegosis with discharge of effluent to Lake Winnipegosis.	Winnipegosis

H-08-82	82/04/20	Regarding the continued operation of the Simplot Chemical Company Ltd. of an enlarged fertilizer manufacturing plant located in the SW¼ of Section 18, Township 10, Range 18 WPM in the City of Brandon, with discharge of effluent to the Assiniboine River and for the irrigation of cropland.	Brandon
H-09-82	82/04/26	Regarding Frontier School Division No. 48 to consider a request filed by the Applicant to vary Commission Order No. 456 covering a sewage lagoon serving the Brochet School and Teacherages located in Township 102, Range 26, WPM at Brochet, Manitoba, with discharge of treated effluent into Brochet Bay of Reindeer Lake.	Brochet
H-10-82	82/05/04	Regarding direction from the Minister to hold a hearing and submit a report and recommendations in connection with Inco Metals Company, Thompson, concerning possible variation of Order No. 483V00 on the operation of a nickel smelter complex located on Parcel 3, Drawing Reg. No. NLTO 4745 in Township 77, Range 3 WPM in the Local Government District of Mystery Lake, Manitoba.	Thompson
H-11-82	82/05/12	Regarding a request from the Minister, an investigation into mosquito control programs in use in the Province of Manitoba.	Winnipeg
H-12-82	82/05/18	Regarding a request from the Minister, an investigation into mosquito control programs in use in the Province of Manitoba.	Brandon
H-13-82	82/05/19	Regarding a request from the Minister, an investigation into mosquito control programs in use in the Province of Manitoba.	Dauphin
H-14-82	82/05/25	Regarding a request from the Minister, an investigation into mosquito control programs in use in the Province of Manitoba.	Thompson
H-15-82	82/06/15	Regarding Inco Metals Company concerning solid, liquid and atmospheric emissions from existing mining and smelting operations located in part of Townships 77 and 78, Ranges 2 and 3, WPM, in the Local Government District of Mystery Lake, and a proposed open pit mining operation at the same location (but not including emissions from the main smelter stack which were dealt with at a previous hearing).	Thompson
H-16-82	82/07/13	Regarding the City of Brandon in connection with the continued operation of a sewage treatment plant located in the NE¼ of Section 17 and a system of sewage lagoons located in Sections 21 and 22, Township 10, Range 18 WPM in the City of Brandon, Manitoba, with discharge of effluent to the Assiniboine River.	Brandon
*H-17-82	82/07/20	Regarding a request from the Minister for the purpose of reviewing Commission Order No. 871 issued concerning Simplot Chemical Company Limited for the operation of a chemical fertilizer manufacturing plant located in the SW¼ of Section 18, Township 10, Range 18 WPM in the City of Brandon, Manitoba, with emission of ammonia, oxides of nitrogen, sulphur dioxide and particulates to the atmosphere.	Brandon

H-18-82	82/08/16	Regarding the City of Brandon mosquito abatement program, a request by the City to vary Order No. 579 to permit the use of the insecticide Baygon in parks and recreation areas.	Brandon
H-19-82	82/08/17	Regarding Mohawk Oil Company Limited for the operation of a distillery for the manufacture of alcohol from grains located in part of the NW¼ of Section 3, SE¼ of Section 10, and SW¼ of Section 11, all in Township 14, Range 18 WPM in the Town of Minnedosa, with a potential for dust, odour and sound emissions to the environment.	Minnedosa
H-20-82	82/09/17	At the direction of the Minister following an appeal from Order No. 903 and under the direction of Order-in-Council 914/82 with a view to issuing a new order on the operation of the Riverdale Colony sewage lagoon system located in the SE¼ of Section 9, Township 14, Range 12 WPM in the Rural Municipality of Westbourne, processing domestic sewage from the Colony with discharge of effluent via Bear Creek to the Whitemud River.	Gladstone
H-21-82	82/10/04	Regarding Versatile Manufacturing Ltd. for an agricultural testing facility to be located on Lot 1, Plan 15132, in the SW¼ of Section 25, Township 8, Range 1 WPM in the Rural Municipality of Macdonald with a potential for noise and dust emissions to the environment.	Sanford
H-22-82	82/11/12	Regarding a request from the Morden Town Council for variation of Commission Order No. 620 concerning the Town of Morden sewage lagoon system located in the NE¼ of Section 9, Township 8, Range 5 WPM partly in the Rural Municipality of Stanley and partly in the Town of Morden with discharge of effluent through a drain to Deadhorse Creek.	Morden
H-23-82	82/12/13	Regarding a request submitted by The Manitoba Water Services Board on behalf of the Town of Souris for variation of Order No. 505VCC to delay by eight months the date prescribed by the Commission for the imposition of secondary quality standards to effluent being discharged to the Souris River from the Town sewage treatment facility.	Souris

*H-17-82 — This hearing, in connection with Simplot Chemical Company Limited, was reconvened on September 14, 1982.

Appendix B

Orders Issued by The Clean Environment Commission in the Calendar Year 1982

Orders Resulting From Applications

	Number	Applicant	Issue Date
1.	934	Issued to the Rural Municipality of Brenda in connection with the operation of a sewage lagoon system located in the NW¼ of Section 32, Township 3, Range 24 WPM in the Rural Municipality of Brenda serving the unincorporated village of Medora with discharge of effluent to Medora Creek.	January 27
2.	935	Issued to Dauphin Alfalfa Products Ltd. in connection with the operation of an alfalfa dehydrating plant located on Lot 3, Plan 2429, in the Town of Dauphin.	January 28
3.	936	Issued to Bothwell Co-operative Dairy Society Ltd. in connection with the operation of an aerated sewage lagoon system located in the SE¼ of Section 30, Township 7, Range 5 EPM in the Rural Municipality of Hanover, for the treatment of liquid waste from a plant for the manufacture of cheese and whey powder with discharge of effluent via road ditches to the Manning Canal.	January 28
4.	937	Issued to Manitoba Dairy Co-operative Ltd. in connection with the operation of a cheese manufacturing plant located on Parcel A, Plan 53-45, in the SE¼ of Section 36, Township 19, Range 25 WPM in the Village of Rossburn.	January 28
5.	938	Issued to Manitoba Pool Elevators in connection with the operation of an existing grain elevator located on the Canadian Pacific right-of-way in the Village of Cartwright.	January 28
6.	939	Issued to Regional Products Limited in connection with the operation of a plant for the fabrication of metal products located on Lot 1096, Plan 2766, at or near 455 Provencher Boulevard in the City of Winnipeg.	February 24
7.	940	Issued to Roblin Forest Products Ltd. in connection with the operation of a lumber mill located in the NE¼ of Section 8, Township 26, Range 28 WPM in the Rural Municipality of Shell River.	February 25
8.	941	Issued to the Rural Municipality of Brokenhead in connection with the operation of a sewage lagoon system to be located in the NW¼ of Section 11, Township 13, Range 6 EPM in the Rural Municipality of Brokenhead serving the unincorporated village of Tyndall with discharge of effluent via open ditches to Devil's Creek.	February 25
9.	942	Issued to the Department of Natural Resources in connection with the operation of a sewage lagoon system to be located in Section 14, Township 8, Range 14 WPM in Spruce Woods Provincial Park serving a campground and related recreational facilities with discharge of effluent to the Assiniboine River.	February 26

10.	943	Issued to Manitoba Sausage Manufacturing Company Limited in connection with the operation of a plant for the manufacture of cooked and smoked meat products located on Lots 16 to 24, Plan 331, DGS 65, Parish of St. John, at or near 691 Dufferin Avenue in the City of Winnipeg.	March 25
11.	944	Issued to Foremost Sailcraft Ltd. in connection with the operation of a plant for the manufacture of tanks, van interiors and other items from fibreglass reinforced plastic located on Block A, Plan 31, W/S Main Street in the Town of Carman.	April 28
12.	945	Issued to McCallister Pea & Seed Cleaners Ltd. in connection with the operation of a plant for the cleaning and storage of pea, oilseed, and grain products, located in Block 48, Lots 1-14, Plan 30 at or near 400 — 4th Avenue, East in the City of Portage la Prairie.	April 28
13.	946	Issued to the Department of Natural Resources in connection with the application of the insecticide Malathion to an area of Bird's Hill Provincial Park on the 9th and 10th days of July, 1982, if necessary, to control mosquitoes and blackflies on grounds used for the Winnipeg Folk Festival.	June 10
14.	947	Issued to the Rural Municipality of Stanley in connection with aerial application of the insecticide Baygon for the control of mosquitoes in Centennial Park located in part of the NW¼ of Section 22, Township 2, Range 6 WPM in the said Municipality.	June 10
15.	948	Issued to Westnofa of Canada (1979) Limited in connection with the operation of a plant for the manufacture of wooden furniture, located at or near 691 Golspie Street in the City of Winnipeg.	June 10
16.	949	Issued to Dowse Woodwork Ltd. in connection with the operation of a custom woodworking plant located on Lot 705, Plan 98, St. Boniface, at or near 707 Tache Avenue in the City of Winnipeg.	June 10
17.	950	Issued to the Department of Natural Resources in connection with the application of the insecticide Malathion to selected spruce trees planted for landscaping purposes located in the Adam Lake camping and day use areas of Turtle Mountain Provincial Park and in the campground of the William Lake recreation area located in the Rural Municipality of Morton for the control of Spruce Budworm.	June 10
18.	951	Issued to Wilson Auto Electric Limited in connection with the modification and continued operation of a plant for the reclamation and remanufacture of electrical equipment located at or near 600 Golspie Street in the City of Winnipeg.	June 10
19.	952	Issued to Manitoba Hydro in connection with the operation of a sewage lagoon system located at co-ordinates 54° 32' North, 98° 02' West, in Township 64, Range 4 WPM at Jenpeg, serving the Jenpeg construction camp with discharge of effluent to Cross Lake.	June 10

20.	953	Issued to the Local Government District of Alexander in connection with the operation of a sewage lagoon system to be located in River Lot 10, Township 18, Range 10 EPM, in the said Local Government District, to serve the unincorporated village of St. Georges, with discharge of effluent via ditches to the Winnipeg River.	June 14
21.	954	Issued to the Rural Municipality of Macdonald in connection with the operation of a sewage lagoon system located in the SW¼ of Section 27, Township 8, Range 2 EPM, in the said Rural Municipality, serving the unincorporated village of La Salle, with discharge of effluent via a ditch to the La Salle River.	June 14
22.	955	Issued to the Department of Natural Resources in connection with the use of the insecticide Chlordane to control red and black ants in the Adam Lake seasonal camping area of Turtle Mountain Provincial Park.	June 17
23.	956	Issued to Manitoba Hydro in connection with a program to control elm bark beetles by the application of the insecticide Methoxychlor using vehicle mounted mist blower equipment to trees located at or near the Seven Sisters Generating Station in Township 13, Range 5 EPM in the Rural Municipality of Whitemouth.	July 7
24.	957	Issued to Manitoba Hydro in connection with a program to control elm bark beetles by the application of the insecticide Methoxychlor using vehicle mounted mist blower equipment to trees located at or near the Great Falls Generating Station and Townsite, located in Township 17, Range 11 EPM in the Local Government District of Alexander.	July 7
25.	958	Issued to Manitoba Hydro in connection with the operation of a sewage treatment plant located at latitude 54° 32' North, longitude 98° 02' West at the Jenpeg Generating Station with discharge of effluent into Cross Lake.	July 22
26.	959	Issued to CSP Foods Ltd. in connection with the operation of a plant for the manufacture of vegetable oil, meal and other products from Canola and other seeds located in the SW¼ of Section 33, Township 20, Range 29 WPM in the Rural Municipality of Russell.	July 22
27.	960	Issued to Inco Limited in connection with the operation of a nickel mine, mill, smelter, refinery, and tailings disposal facilities located in the general vicinity of Thompson.	September 20
28.	961	Issued to Pioneer Meat Ltd. in connection with the operation of abattoir waste disposal pits and a sewage lagoon system located on the north side of PTH No. 421 in part of Section 34, Township 1, Range 1 WPM, in the Rural Municipality of Rhineland.	September 28
29.	962	Issued to Mohawk Oil Company Limited in connection with the operation of a distillery located in the NW¼ of Section 2, the NE¼ of Section 3, the SE¼ of Section 10 and the SW¼ of Section 11, Township 15, Range 18 WPM in the Town of Minnedosa.	October 7
30.	963	Issued to Riverdale Colony in connection with the operation of a sewage lagoon system located in the SE¼ of Section 9, Township 14, Range 12 WPM in the Rural Municipality of Westbourne with discharge of effluent via Bear Creek to the Whitemud River.	October 29

31.	964	Issued to 3M Canada Inc. in connection with the operation of a plant for the manufacture of powdered exopy resins located in the SE¼ of Section 5, Township 3, Range 5 WPM in the Town of Morden.	October 29
32.	965	Issued to the City of Brandon in connection with operation of a sewage treatment plant located in part of the NE¼ of Section 17 and of sewage lagoons located in Sections 21 and 22, all in Township 10, Range 18 WPM with discharge of effluent to the Assiniboine River.	November 16
33.	966	Issued to the Department of Natural Resources in connection with the use of the insecticide Bacillus thuringiensis to control forest tent caterpillars applied from aircraft in the Rocky Lake Campground, Section 11, Township 60, Range 27 WPM, and in the Baker's Narrows Campground, Sections 31 and 32, Township 65, Range 28 WPM.	November 19
34.	967	Issued to Versatile Manufacturing Ltd. in connection with the operation of an agricultural machinery test facility located on Lot 1, as shown on Plan 15132, in the SW¼ of Section 26, Township 8, Range 1 WPM in the Rural Municipality of Macdonald.	November 19
35.	968	Issued to Frontier School Division No. 48 in connection with the operation of a sewage treatment plant serving the Norway House High School and teachers' residences, located on Norway House Indian Reserve No. 17 with discharge of treated effluent to the Jack River.	December 15
36.	969	Issued to Manitoba Hydro in connection with the operation of a sewage treatment plant located in Township 85, Range 20 EPM at the Long Spruce Generating Station in the Local Government District of Gillam, serving the said generating station with discharge of effluent to the Nelson River.	December 15
37.	970	Issued to Manitoba Hydro in connection with the operation of a sewage treatment plant located in part of the E½ of Section 36, Township 86, Range 31 EPM and part of the W½ of Section 31, Township 86, Range 22 EPM, serving the Limestone Generating Station Construction Area with discharge of effluent to the Nelson River.	December 15
38.	971	Issued to Manitoba Hydro in connection with the operation of a sewage treatment plant located in Township 87, Range 22 EPM serving the Limestone Sundance Townsite with discharge of effluent to the Nelson River.	December 15

Orders Varied

1.	259VC	Issued to Steel Brothers Canada Ltd. in connection with the operation of a limestone crushing and grading plant located at or near 580 Pembia Highway in the City of Winnipeg.	February 5
2.	905VC	Issued to the Rural Municipality of Ochre River in connection with the operation of a sewage lagoon system located on Parcels A/C 1747 in the SW¼ of Section 15, Township 24, Range 17 WPM serving the unincorporated village of Ochre River with discharge of effluent to the Ochre River.	June 10

3.	907VC	Issued to the Village of Winnipegosis in connection with the operation of an existing sewage lagoon system located in Blocks 9 and 10, Plan 219, in the SE¼ of Section 15, Township 31, Range 18 WPM in the Village of Winnipegosis with discharge of effluent to Lake Winnipegosis.	June 10
4.	738VCC	Issued to Shell Canada Limited in connection with the operation of an oil refinery located on Lots 1, 2, and 3, Plan 5383, of the Roman Catholic Mission Property in the City of Winnipeg.	June 23
5.	834VC	Issued to Simplot Chemical Company Limited in connection with the operation of a chemical fertilizer manufacturing plant located in the SW¼ of Section 18, Township 10, Range 18 WPM in the City of Brandon, with discharge of liquid wastes to the soil to irrigate croplands and to the Assiniboine River.	July 26
6.	266VO	Issued to the Village of Lac du Bonnet in connection with the operation of a sewage lagoon system located on portions of the SW¼ of Section 20, Township 15, Range 11 EPM and the NW¼ of Section 17, Township 15, Range 11 WPM in the Rural Municipality of Lac du Bonnet with effluent discharge into the Winnipeg River via Wardrop's Creek.	September 22
7.	871VC	Issued to Simplot Chemical Company Limited in connection with the operation of a chemical manufacturing plant complex located in the SW¼ of Section 18, Township 10, Range 18 WPM in the City of Brandon.	November 16
8.	620VC	Issued to the Town of Morden in connection with the operation of a sewage lagoon system located in the NE¼ of Section 9, Township 3, Range 5 WPM partly in the Town of Morden and partly in the Rural Municipality of Stanley with discharge of effluent via a drain to Deadhorse Creek.	November 19
9.	505VCCC	Issued to the Town of Souris in connection with the operation of a septic tank located in the NE¼ of Section 34, Township 7, Range 21 WPM in the Town of Souris with discharge of effluent to the Souris River.	December 21